

REMARKS

Claims 1 and 3-5 stand rejected under 35 U.S.C. 103(a) as being obvious over Oishi (U.S. Patent No. 6,532,055) in view of Sato et al. (U.S. Patent No. 6,345,887). Applicant traverses the rejection because the cited references fail to disclose or suggest a plurality of flexible circuit boards having at least two driver ICs mounted thereon.

The Examiner admits on page 3 of the Office Action that Oishi fails to teach two driver ICs that are mounted on each flexible printed circuit board. However, the Examiner cites Sato as teaching a pair of driver ICs mounted on a single printed circuit board. (Element 12 of FIG. 2). Therefore, the Examiner concludes that it would be obvious to include two driver ICs on a single printed circuit board.

Independent claim 1 calls for, among other things, a plurality of flexible circuit boards that have two driver ICs mounted thereon. The printed circuit board of Sato is not a flexible circuit board. Oishi also fails to disclose using a flexible circuit board, as noted by the Examiner. Therefore, since both of the cited references fail to disclose or suggest mounting two driver ICs on a “flexible” circuit board, the §103(a) rejection should be withdrawn for at least this reason, which is respectfully requested.

Advantageously, the present invention has a feature of providing a plurality of flexible circuit boards connecting a liquid crystal panel to a printed circuit board. The flexible circuit boards have thereon at least two driver ICs, wherein at least two of which are cascade connected with respect to the input signals. This cascade connection reduces the required number of input terminals on the plurality of flexible circuit boards. Thus,

even if each driver IC needs an increased number of input terminals to the source bus electrodes on a liquid crystal panel to achieve high image resolution, the present invention prevents excessively narrow pitch of the input terminals.

More specifically, since the present invention restrains the narrowing down of the input terminal pitches of each of the flexible circuit boards, connections are more reliable between the input terminals on the flexible circuit boards and the output terminals on the printed circuit board when using an anisotropic conductive adhesive agent, for example. The above-described features and advantages of the present invention are not disclosed, suggested, or achieved by the cited prior art references for the reasons discussed below.

First, the Examiner asserts that Oishi describes the elements of claim 1 except for the cascade connection of at least two driver ICs on a flexible circuit board for input signals. However, Oishi relates to a gate driver, and not a source driver like the present invention.

Second, the Examiner asserts that FIG. 2 of Sato describes the mounting of two driver ICs 15 on the single printed circuit board 12, and that Oishi discloses that the plurality of driver ICs 15 are cascaded for the inputs as the input 16, 17 and 18 in FIG. 1B. However, FIG. 1B of Oishi does not have any inputs 16, 17 or 18. Oishi fails to disclose input signals being cascade connected between at least two driver ICs on a flexible circuit board, which acts as a source driver. Sato also fails to overcome this deficiency. That is, Sato fails to teach that the printed circuit board 12 carrying the two

driver ICs 15 is a flexible circuit board. Moreover, Sato fails to disclose or suggest cascade connection of the two driver ICs 15 via internal wiring on the printed circuit board 12. Applicant also cannot find support for the Examiner's assertion that Oishi teaches cascade connection of the two driver ICs.

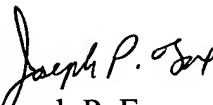
Third, the Examiner asserts that faster production and less raw material quantity for providing a plurality of ICs in a single circuit board are advantages that make the present invention obvious. However, these advantages are not related to the present invention, which has an advantage that a connection between the flexible circuit board and the printed circuit board is more reliable. For all of these additional reasons, withdrawal of the §103 rejection is respectfully requested.

With respect to claim 4, Applicant additionally traverses the rejection because the cited references fail to disclose or suggest that the internal wiring is provided on the side of the printed circuit board with respect to the driver ICs. None of the cited references discloses or suggests that the internal wiring cascading the input terminals of a plurality of driver ICs is provided inside the flexible circuit board carrying a plurality of driver ICs. The Examiner cites Oishi as disclosing internal wiring being provided on the same side of a printed circuit board as the driver ICs. While Oishi discloses having internal wiring to the printed circuit board, Oishi fails to disclose or suggest providing the internal wiring to a flexible circuit board, as in the present invention. For this additional reason, withdrawal of the §103 rejection of claim 4 is respectfully requested.

For all of the foregoing reasons, Applicant submits that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By 
Joseph P. Fox
Registration No. 41,760

March 1, 2006
300 South Wacker Drive
Suite 2500
Chicago, Illinois 60606
(312) 360-0080
Customer No. 24978